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EFFECTS OF BROAD-SCALE CONSERVATION ON NORTHERN BOBWHITE POPULATIONS IN AGRICULTURAL LANDSCAPES

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ABSTRACT

Private land initiatives such as the Conservation Reserve Enhancement Program (CREP) are avenues for broad-scale northern Bobwhite (*Colinus virginianus*) conservation. The CREP in Kentucky established 40,468 ha of native prairie grasses and riparian corridors in the Green River Basin. Northern bobwhite responses to similar conservation measures at local scales (i.e., the site of implementation) have been positive; however, the geographic extent of the influence of private land initiatives on populations is less understood. Our objectives were to investigate landscape-scale effects of CREP on northern bobwhite populations. Using a stratified random sampling design, 254 roadside point counts were performed over 5 years throughout the Green River Basin along a gradient of landscape-scale CREP density. Local-scale (500 m radius) CREP density was held constant at monitoring points. We analyzed data using an open-population distance sampling model that included estimators of appropriate landscape scale and strength of density dependence. Population response to the CREP was positive and outweighed conservation footprint. Our results suggest that broad-scale conservation can influence wildlife populations outside of targeted areas. Concurrently, because the majority of land in the Eastern U.S. is privately owned, private land conservation initiatives present an effective strategy for promoting wildlife population recovery across large areas. Our future directions with this research include improving model estimators, determining mechanisms behind landscape-scale effects of CREP, and determining the influence of the spatial arrangement of landscape features on local populations.

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